

Analysis of Syphilis and Associated Risk Factors in Pregnant Women Belongs to Remote Areas of Sukkur

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ABSTRACT

Objective: To determine and analysis of Syphilis and Associated Risk Factors in Pregnant Women Belongs to Remote Areas of Sukkur.

Study Design: Cross sectional study.

Place and Duration of Study: This study was conducted on women belongs to peripheral areas of sukkur over a period of fifteen months, which beginning in May, 2012.

Materials and Methods: Patient's 5ml whole blood was collected through venepuncture technique. Data were collected by all women answered a questionnaire and by investigating Blood Sample VDRL test and FTA-ABS test. The study was conducted in a confidential manner and numbers were used to identify the participant.

Results: Total 200 Pregnant women were included in the present study. Mean age of women was 25.4 years while range was 18 to 39 years. Out of the 200 samples, 6 (3.0%) were positive for active syphilis. Majority was belonging to low socioeconomic group of population.

Conclusion: Active syphilis infection in pregnant women belongs to remote areas with low socioeconomic level were significantly disquieting. Alarming results of this study suggestive that seropositive status is often discovered in routine serological studies during pregnancy at health centers and efficient prolonged treatment of mother were available.

Key Words: Syphilis, Treponema Pallidum infection, Pregnant women, VDRL, FTA-ABS.

INTRODUCTION

During the last two decades much attention been drawn to pathogens have been associated with sporadic pregnancy loss. These include toxoplasma, human immune deficiency virus, mycoplasma, treponema pallidum, herpes and chlymadia¹. The prevalence of seropositivity of syphilis in pregnancy is rare in northern europe and united states. Syphilis continues to be a major cause of pregnancy loss and adverse pregnancy outcome among women who do not receive antenatal syphilis screening and treatment^{2,3}. Screening and treatment for syphilis in pregnant women have been recommended as a potentially feasible and cost-effective intervention to reduce fetal and prenatal mortality and other adverse outcomes⁴. Maternal syphilis has been associated with prenatal morbidity and mortality in many parts of the country⁵. As in most resource- limited countries, widespread screening is not conducted in Pakistan for many important infections and metabolic disease during pregnancy, including syphilis, HIV, gonorrhea, Chlamydia and inborn error of metabolism⁶. In addition, Pakistan has one of the highest fertility rates of any country in the world, estimated by UNICEF to be 3.6 per women. Syphilis in pregnant women is associated with low birth weight, prematurity, and intrauterine death⁷.

Active syphilis infection in developed counties is rare. But in part of the world where the traditional venereal disease has not been controlled, such as peripheral areas of Pakistan, the magnitude of the problems associated with congenital syphilis such as saddlenose and cleft palate has been still prevalent^{8,9}.

Syphilis is caused by the spirochaete treponema pallidum. This organism is transmitted during sexual activity from a mucocutaneous lesion. The cervical changes, such hyperemia, eversion, and friability, which occur during pregnancy may facilitate the entry and lead to spirochaetaemia¹⁰. The fundamental histological changes both congenital and acquired syphilis are vasculitis and its consequences, necrosis and fibrosis. Pregnancy has no known effect on the clinical course of syphilis¹¹. In acquired infection, after an initial incubation period of 3-90 days, a solitary papule with central ulceration, teeming with spirochaets, erupts at the site of inoculation, which is often found on the genitalia, and less frequently on the rectal and the oral mucosa¹². This popular lesion is known as the chancre of syphilis and marks the primary stages of the diseases. The mother can transmit the infection transplacentally to the fetus or during passage through the birth canals by contact of the newborn with a genital lesion. Breast feeding does not result in the

transmission of syphilis, unless an infections lesion is present on the breast¹³.

However, certain risk factors associated with a high prevalence of syphilis included maternal, age husband's occupation, income, late antenatal care, illiteracy, unemployed, habitual drug use, husband's habitual drug use, husband's extramarital reaction, and blood transfusion¹⁴.

The true burden of syphilis in our country is unknown. The main reasons are that the mothers are mostly asymptomatic or have non-specific symptoms, lack of awareness about such diseases, inadequate facilities for screening tests or their high cost, poor access to a health facility and nonexistence of surveillance systems¹⁵. The present study was designed to estimate the prevalence and associated risk factors for syphilis in pregnant women residing to periphery of sukkur.

MATERIALS AND METHODS

Study design and site: A cross-sectional study on the analysis and associated risk factors for syphilis in pregnant women. The woman belongs to peripheral areas of sukkur, Pakistan. Many of all women were illiterate and even many of them were not properly guided of their basic ethics of their religions.

Enrolment of patients: Women attending local health clinics were enrolled in this study after taking their informed consent.

Duration of study: The study was conduct over a period of fifteen months, which beginning in May, 2012.

Data collection: The patients were interviewed by using a structured questionnaire to collect the bio-data and history of patients.

Blood sample: Approximately 5 ml Blood sample were draw by using disposable syringe through vein puncture technique from cubital vein and transferred into a plain tube for biochemical analysis. Samples were taken to the laboratory as soon as possible. The plain tubes were centrifuged at 3000 rpm for 10 min to obtain the serum which were tested for syphilis using both VDRL and FTA-ABS assay.

Syphilis serology testing and case definition: The serum was tested for syphilis, using Venereal Disease Research Laboratory (VDRL) test and Fluorescent Treponemal Antibody – Absorption (FTA-ABS) assay.

RESULTS

Syphilis serological results: Total 200 women were enrolled and tested in this study, Out of 200 women, 06 (3.0 %) has serological results that were consistent with active syphilis (VDRL test reactive and reactive FTA-ABS assay). 05 (2.5%) women were reactive with VDRL only and considered as false-positive or very early infection (VDRL test reactive and a non- reactive FTA-ABS assay).

Multivariate analysis: Risk factors were included in multivariable analysis based on the strength of association criteria.

Table No. 1: Serological results of syphilis

Results	No. of women (n = 200)	Interpretation
VDRL and FTA-ABS Non-reactive	189 (94.5 %)	No evidence of syphilis
VDRL reactive and FTA-ABS Non-reactive	05 (2.5 %)	False – positive or very early infection
VDRL and FTR-ABS Reactive	06 (3.0 %)	Active syphilis

Table No. 2: Frequency and percentage of syphilis by socio-demographic risk factors in a population of pregnant women of rural Sukkur

Socio-demographic risk factors	Frequency (%) (n=06)
Maternal age < 18 years	4 (66.6%)
No school / primary education only	5 (83.3%)
Unemployed (housewife)	6 (100%)
Husband with no school / primary education only	2 (33.3%)
Husband self-employed	2 (33.3%)
Monthly income (Pak Rupees) ≤ 7000	6 (100%)

Table No. 3: Frequency and percentage of syphilis by clinical and behavioral risk factors in a population of pregnant women of rural Sukkur

Clinical and behavioral risk factors	Frequency (%) (n=06)
Gravidity > 1	5 (83.3%)
≥ 1 live children	4 (66.6%)
History of previous low birth weight delivery	3 (50.0%)
History of previous congenital anomaly	1 (16.6%)
No contraceptive use before current pregnancy	3 (50.0%)
5 + years of marriage	3 (50.0%)
Presence of genitourinary symptoms	2 (33.3%)
Presence of genitourinary symptoms in husband	1 (16.6%)
Habitual drug use	4 (66.6%)
Husband's habitual drug use	3 (50.0%)
History of blood transfusion	1 (16.6%)

DISCUSSION

The active syphilis observed in this study was .3.0 %. This is significantly high as compared to rate in USA. Mediterranean, pacific, and in European countries. The

definition of active syphilis used in the study was based on the serological finding expected for the various stage of disease¹⁶. Women who had both a non-reactive VDRL test and a non-reactive FAT-ABS assay were considered to be negative for syphilis. Those who were reactive with VDRL test and non-reactive FTA-ABS were considered to be false-positive. And those who were reactive with FTA-ABS and non-reactive with VDRL were considered as old treated or untreated (syphilis resolved).

In a study conducted in Tanzania, 59 cases of untreated maternal syphilis is a significant cause of adverse pregnancy outcomes women who fail to receive antenatal syphilis screening¹⁷. Another study reveals effective syphilis screening program would reduce stillbirths by 51% and preterm births by 24% in an unscreened population that satisfies the study's inclusion criteria and with similar syphilis prevalence to that of Mwanza Region^{17,18}.

Antenatal syphilis screening is a highly cost-effective intervention and should be prioritized as an essential part of antenatal care throughout sub-Saharan Africa. Health education messages for pregnant women should continue to reinforce the message that untreated maternal syphilis is a danger to the unborn infant, that it can be diagnosed and treated, and that women should attend an ANC that can perform syphilis screening as soon as they suspect that they are pregnant¹⁹.

It is true that several studies have found few or no case of syphilis among general population. A study conducted in similar group from Dhaka Bangladesh among 284 pregnant women found prevalence of 3%²⁰. Another cross sectional clinic based study conducted in Bangladesh in two urban primary health care level clinics among 1105 women found 1.5% prevalence of syphilis²¹. And a study in Bulgaria had shown 0.9% prevalence of syphilis. But a study from China was seroprevalence was 0.5 % which is very low as compared to this study²². A piece of research work among blood donors at Lahore found 0.78% seropositive for syphilis²³. Another study conducted in Lahore in men presenting with dermatological complaint, showed 31.6 % men positive for syphilis¹⁶. In addition should be noted that in neighboring India, the prevalence of syphilis ranges between 2.0-4.8% among women of reproductive age²³.

Differences in the prevalence of syphilis according to race and sex have been reported. It was reported that men 20-29 years old had consistently higher rate of infection compared to age matched women with male to female ratio of 5.2:1²⁴. Epidemiologically data on prevalence of syphilis among women in Pakistan are not available, however according to world Bank report the total burden of disease was about 350 Disability Adjusted life Years per 1000 population per year. Sexually transmitted infection formed 2.2% of Disability Adjusted life years of which syphilis was

0.50% in Pakistan. In our study out of 06 positive women with active syphilis. Results of this study have shown significantly. Sexual contact is the primary mode of transmission of syphilis and all the women denied extramarital sex. As the information was collected from women and not from their husbands therefore it was possible that the men might have had risky behavior unknown to their spouses.

Significant association of syphilis with travel of sex partner in past one year such as among distance truck driving and drug abusers has been reported. The risk of transmission through blood was negligible due to improved donor's serologic testing and of refrigerated blood components¹⁸.

In this study also blood transfusion history was not significantly related to infection. To increase the percentage of screening for syphilis during pregnancy for women a risk, collaborative efforts would be needed among health care providers, health insurances, policymakers and public^{23, 24}.

CONCLUSION

Public health strategies to prevent maternal and fetal syphilis are similar to those of that focus on syphilis and other STDs in general population. These include early identification of infected individuals and high risk populations. Identification of the partners and their treatment should be ensuring. Promoting the accessibility and the use of health care are needed.

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